Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

CHICAGO ELECTRIC WELDING

225 AMP ARC WELDER

Visit our website at: http://www.harborfreight.com
Email our technical support at: tech@harborfreight.com

ITEM 69029

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-800-444-3353 as soon as possible.

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⚠WARNING

Read this material before using this product. Failure to do so can result in serious injury. SAVE THIS MANUAL.

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WARNING SYMBOLS AND DEFINITIONS	
⚠	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠ DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

⚠ WARNING

Read all safety warnings and instructions.
Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.
Save all warnings and instructions for future reference.

General Safety

PROTECT yourself and others. Read and understand this information.

1. **Before use, read and understand manufacturer's instructions, Material Safety Data Sheets (MSDS's), employer's safety practices, and ANSI Z49.1.**
2. **Keep out of reach of children.** Keep children and bystanders away while operating.
3. **Place the welder on a stable location before use.** If it falls while plugged in, severe injury, electric shock, or fire may result.
4. **Do not overreach. Keep proper footing and balance at all times.**
5. **Stay alert, watch what you are doing and use common sense when operating a welder.** Do not use a welder while you are tired or under the influence of drugs, alcohol or medication. *A moment of inattention while operating welders may result in serious personal injury.*
6. **Avoid unintentional starting.** Make sure you are prepared to begin work before turning on the Welder.
7. **Never leave the Welder unattended while energized.** Turn power off if you have to leave.
8. **The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur.** It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.
9. **This product, when used for welding and similar applications, contains or produces a chemical known to the State of California to cause cancer and birth defects (or other reproductive harm).** (California Health & Safety Code § 25249.5, *et seq.*)
10. **Handling the cord on this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm.** Wash hands after handling. (California Health & Safety Code § 25249.5, *et seq.*)

Fume and Gas Safety

FUMES AND GASES can be hazardous to your health.

1. **Exposure to welding or cutting exhaust fumes can increase the risk of developing certain cancers, such as cancer of the larynx and lung cancer.** Also, some diseases that may be linked to exposure to welding or cutting exhaust fumes are:
   - Early onset of Parkinson's Disease
   - Heart disease • Ulcers
   - Damage to the reproductive organs
   - Inflammation of the small intestine or stomach • Kidney damage
   - Respiratory diseases such as emphysema, bronchitis, or pneumonia
2. **Do not use near degreasing or painting operations.**
3. **Keep head out of fumes.** Do not breathe exhaust fumes.
4. **Use enough ventilation, exhaust at arc, or both, to keep fumes and gases from breathing zone and general area.** If engineering controls are not feasible, use an approved respirator.
5. **Work in a confined area only if it is well-ventilated, or while wearing an air-supplied respirator.**
6. **Have a recognized specialist in Industrial Hygiene or Environmental Services check the operation and air quality and make recommendations for the specific welding situation.** Follow OSHA guidelines for Permissible Exposure Limits (PEL's) and the American Conference of Governmental Industrial Hygienists recommendations for Threshold Limit Values (TLV's) for fumes and gases.

Arc Ray Safety

ARC RAYS can injure eyes and burn skin.

1. **Wear ANSI-approved welding eye protection featuring at least a number 10 shade lens rating.**
2. **Wear leather leggings, fire resistant shoes or boots during use.** Do not wear pants with cuffs, shirts with open pockets, or any clothing that can catch and hold molten metal or sparks.
3. **Keep clothing free of grease, oil, solvents, or any flammable substances.** Wear dry, insulating gloves and protective clothing.
4. **Wear an approved head covering to protect the head and neck.** Use aprons, cape, sleeves, shoulder covers, and bibs designed and approved for welding and cutting procedures.
5. **When welding/cutting overhead or in confined spaces, wear flame resistant ear plugs or ear muffs to keep sparks out of ears.**

Electrical Safety

ELECTRIC SHOCK can KILL.

1. **Turn off, disconnect power, and discharge electrode to ground before setting down torch/electrode holder and before service.**
2. **Do not touch energized electrical parts.** Wear dry, insulating gloves. Do not touch electrode holder, electrode, welding torch, or welding wire with bare hand. Do not wear wet or damaged gloves.
3. **Connect to grounded, GFCI-protected power supply only.**
4. **Do not use near water or damp objects.**
5. **People with pacemakers should consult their physician(s) before use.** Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.
6. **Do not expose welders to rain or wet conditions.** Water entering a welder will increase the risk of electric shock.
7. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the welder.** Keep cord away from heat, oil, sharp edges or moving parts. *Damaged or entangled cords increase the risk of electric shock.*
8. **Do not use outdoors.**
9. **Insulate yourself from the workpiece and ground.** Use nonflammable, dry insulating material if possible, or use dry rubber mats, dry wood or plywood, or other dry insulating material large enough to cover your full area of contact with the work or ground.

Fire Safety

ARC AND HOT SLAG can cause fire.

1. **Clear away or protect flammable objects.** Remove or make safe all combustible materials for a radius of 35 feet (10 meters) around the work area. Use a fire resistant material to cover or block all open doorways, windows, cracks, and other openings.
2. **Keep ABC-type fire extinguisher near work area and know how to use it.**
3. **Maintain a safe working environment.** Keep the work area well lit. Make sure there is adequate surrounding workspace. Keep the work area free of obstructions, grease, oil, trash, and other debris.
4. **Do not operate welders in atmospheres containing dangerously reactive or flammable liquids, gases, vapors, or dust.** Provide adequate ventilation in work areas to prevent accumulation of such substances. *Welders create sparks which may ignite flammable substances or make reactive fumes toxic.*
5. **If working on a metal wall, ceiling, etc., prevent ignition of combustibles on the other side by moving the combustibles to a safe location.** If relocation of combustibles is not possible, designate someone to serve as a fire watch, equipped with a fire extinguisher, during the cutting process and for at least one half hour after the cutting is completed.
6. **Do not weld or cut on materials having a combustible coating or combustible internal structure, as in walls or ceilings, without an approved method for eliminating the hazard.**
7. **Do not dispose of hot slag in containers holding combustible materials.**
8. **After welding, make a thorough examination for evidence of fire.** Be aware that easily visible smoke or flame may not be present for some time after the fire has started.
9. **Do not apply heat to a container that has held an unknown substance or a combustible material whose contents, when heated, can produce flammable or explosive vapors.** Clean and purge containers before applying heat. Vent closed containers, including castings, before preheating, welding, or cutting.

Welder Use and Care

1. **Do not use the welder if the switch does not turn it on and off.** *Any welder that cannot be controlled with the switch is dangerous and must be repaired.*
2. **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing welders.** *Such preventive safety measures reduce the risk of starting the welder accidentally.*
3. **Prevent unintentional starting.** Ensure the switch is in the off-position before connecting to power source or moving the welder. *Carrying or energizing welders that have the switch on invites accidents.*
4. **Store idle welders out of the reach of children and do not allow persons unfamiliar with the welder or these instructions to operate the welder.** Welders are dangerous in the hands of untrained users.
5. **Use the welder and accessories in accordance with these instructions, taking into account the working conditions and the work to be performed.** *Use of the welder for operations different from those intended could result in a hazardous situation.*

Maintenance

1. **Maintain welders. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the welder's operation.** If damaged, have the welder repaired before use. *Many accidents are caused by poorly maintained welders.*
2. **Have your welder serviced by a qualified repair person using only identical replacement parts.** *This will ensure that the safety of the welder is maintained.*
3. **Maintain labels and nameplates on the Welder.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
4. **Unplug before maintenance.** Unplug the Welder from its electrical outlet before any inspection, maintenance, or cleaning procedures.

SAVE THESE INSTRUCTIONS.

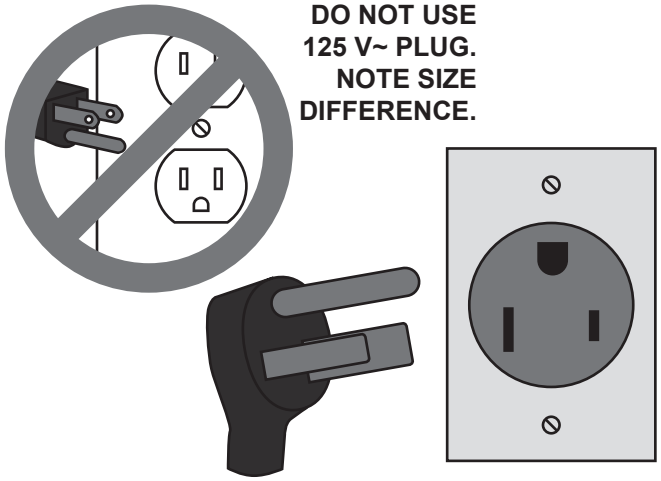
Grounding

⚠WARNING

TO PREVENT ELECTRIC SHOCK AND DEATH FROM INCORRECT GROUNDING WIRE CONNECTION:
Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Have a plug installed by a certified electrician.
Do not use the welder if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician, do not use adapter plugs.

1. The green wire inside the cord is connected to the grounding system in the welder. The green wire in the cord must be the only wire connected to the welder's grounding system and must never be attached to an electrically "live" terminal. Never leave the grounding wire disconnected or modify the Power Cord Plug in any way.
2. Make sure the tool is connected to an outlet having the same configuration as the plug. If the tool must be reconnected for use on a different type of electric circuit, the reconnection should be made by qualified service personnel; and after reconnection, the tool should comply with all local codes and ordinances.
3. A 250 V~ plug will need to be installed by a certified electrician before use.
4. The plug shown (NEMA 6-50p) is for use on a 50 A circuit. A different 250 V~ plug and outlet combination may be used, provided it is rated to handle the electrical requirements of the tool and is installed by a certified electrician.

Note: Although 125 V~ plugs may look similar, the required plug is much larger, see illustration.



250 V~ 3-Prong Plug (6-50p) and Outlet (6-50r)
(for up to 250 V~ and up to 50 A)

Extension Cords

Do not use an extension cord on this welder.

Replacement Cords

1. A qualified electrician can install a UL-listed, 3 wire cords of the same thickness and length as the one already installed on this welder.
2. **Do not install a thinner or longer cord on this welder.**
3. **Do not patch cords of any length together for this item, patches may allow moisture to penetrate the insulation, resulting in electric shock.**

Symbology

	Workpiece Ground Cable
	Electrode Cable
	Overheat Shutdown Indicator
	Cooling Fan
	Housing Ground Point

V~	Volts Alternating Current
A	Amperes
OCV	Open Circuit Voltage
KVA	Kilovolt Amperes (Volts / 1000 * Amperes)
AWG	American Wire Gauge

Specifications

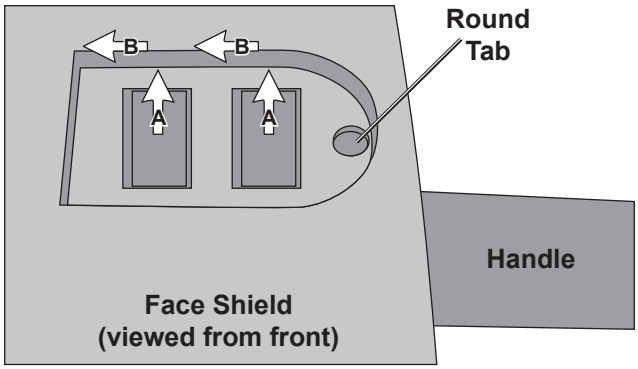
Power Input	240V~, 60Hz, 47A (A 50A dedicated circuit is required)
Max OCV	48V
Output Current	60 - 225 A, AC (270 A peak)
Capacity	1/16" to 1/4" thick and up mild steel
Rated Duty Cycle	20% @ 225 amps
Weldable Materials	Steel, Cast Iron
Electrode Diameter	1/16" - 1/4"
Included Accessories	Handheld face shield, Chipping hammer with wire brush, five electrodes

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

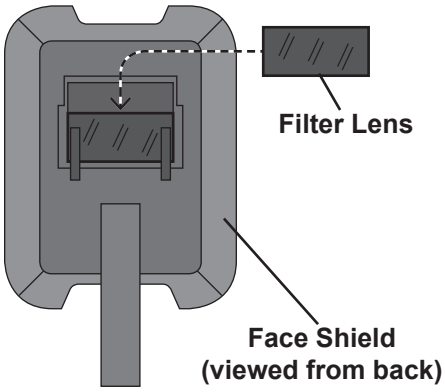
⚠WARNING **TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION: Turn the Power Switch off and unplug the welder before assembly.**

Face Shield Assembly

1. Attach the handle to the Face Shield by lining up the two rectangular tabs on the handle with the corresponding holes in the face shield and
   A. press the tabs through the holes and then
   B. slide the tabs forward from the back, locking the round tab in place.



2. Wear heavy-duty work gloves, the edges of the filter lens may be sharp. Remove any protective film from both sides of the filter lens. Slide the filter lens into the helmet behind the holding tabs. Make sure that the filter lens fits securely and that light cannot leak around its edges.



Components and Controls

⚠WARNING

To Prevent Serious Injury and Permanent Eye Damage:
Wear protective gear during use; an ANSI-approved welding mask shade 10, ear protection, welding gloves and apron, NIOSH-approved respirator, and fire resistant work clothes without pockets.
Light from the arc can cause permanent damage to the eyes and skin. Do not breathe arc fumes.

Duty Cycle (Duration of Use)

20% RATED (225A)
DUTY CYCLE

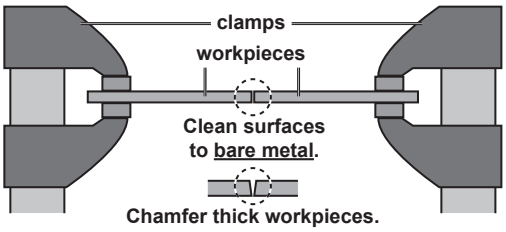
2 minutes welding
followed by
at least 8 minutes of rest

Avoid damage to the Welder by not welding for more than the prescribed duty cycle time. The duty cycle defines the number of minutes, within a 10 minute period, during which a given welder can produce a particular welding current without overheating. For example, this Welder, at its rated output, has a 20% duty cycle and must be allowed to rest for at least 8 minutes after every 2 minutes of continuous welding. Failure to carefully observe duty cycle limitations can easily over-stress a welder's power generation system contributing to premature welder failure.

Thermal Overload Protection - This Welder has an internal thermal protection system to help prevent this sort of over-stress. When the unit overheats, it automatically shuts down and the Overload Light turns on. The Welder automatically returns to service after cooling off. Rest the Electrode Holder on an electrically non-conductive, heat-proof surface, such as a concrete slab, well clear of the ground clamp while allowing the welder to cool with the Power Switch on, so that the internal fan will help cool the Welder. When the Welder can be used again, use shorter welding periods and longer rest periods to prevent needless wear.

Setting up the Weld

1. **Make practice welds on pieces of scrap the same thickness as your intended workpiece to practice technique before welding anything of value.** Clean the weld surfaces thoroughly with a wire brush or angle grinder; there must be no rust, paint, oil, or other materials on the weld surfaces, only bare metal.
2. Use clamps (not included) to hold the workpieces in position so that you can concentrate on proper welding technique. The distance (if any) between the two workpieces must be controlled properly to allow the weld to hold both sides securely while allowing the weld to penetrate fully into the joint. The edges of thicker workpieces may need to be chamfered (or beveled) to allow proper weld penetration.



Basic Welding Technique

1. Place the Welder on a level surface that can bear its weight near the work area.
2. Secure the Grounding Clamp to a clean, exposed metal part of the workpiece.
3. Place the uncoated end of the electrode inside the jaws of the Electrode Holder. Electrode types vary for welding different metals.
4. Turn the Current Knob to adjust the welding current. The approximate current setting can be read on the Current Indicator.

IMPORTANT: A 50A dedicated circuit is required.

5. Plug the power cord into a grounded 240V outlet and turn the Welder on.

WARNING! TO PREVENT SERIOUS INJURY AND DEATH: If the operator is not holding the Electrode Holder, it must be sitting on a nonconductive, nonflammable surface. The Stick Welder will immediately turn on when the Power Switch is turned on.

6. Stroke the workpiece lightly to ignite the arc. Tips for igniting the arc:
   a. Stroke the surface with the electrode.
   b. Strike the surface like a match with the electrode.
   c. Tap the surface with the electrode.
7. When the arc ignites, tilt the electrode forward and hold it near the workpiece.

After practice welding for a few seconds, STOP and examine your weld using the guidelines starting below.

8. When finished welding; lift the electrode from the workpiece and turn the Welder off.
9. Place the handle down on a nonflammable, nonconductive surface.
10. To prevent accidents disconnect the tool from its power supply after use. Allow the tool to cool down, clean, then store the tool indoors out of children's reach.

Welding Tips

A good way to test welding technique is to examine a weld's appearance after it has cooled and the slag has been removed. Then, better welding can be learned by adjusting your weld technique to remedy any problems found.

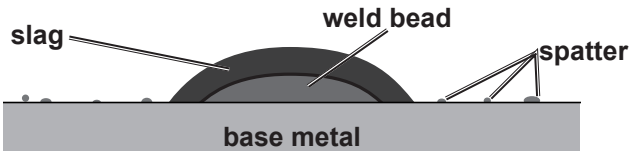
Cleaning the Weld

⚠WARNING

TO PREVENT SERIOUS INJURY:
Continue to wear ANSI-approved safety goggles and protective wear when cleaning a weld.
Sparks or chips may fly when cleaning.

1. A weld will be covered by slag: use a Chipping Hammer to knock this off. **Be careful not to damage the weld or base material.**
2. Then, use a Wire Brush to further clean the weld or use an angle grinder (sold separately) to shape the weld.

A typical Weld before cleaning.

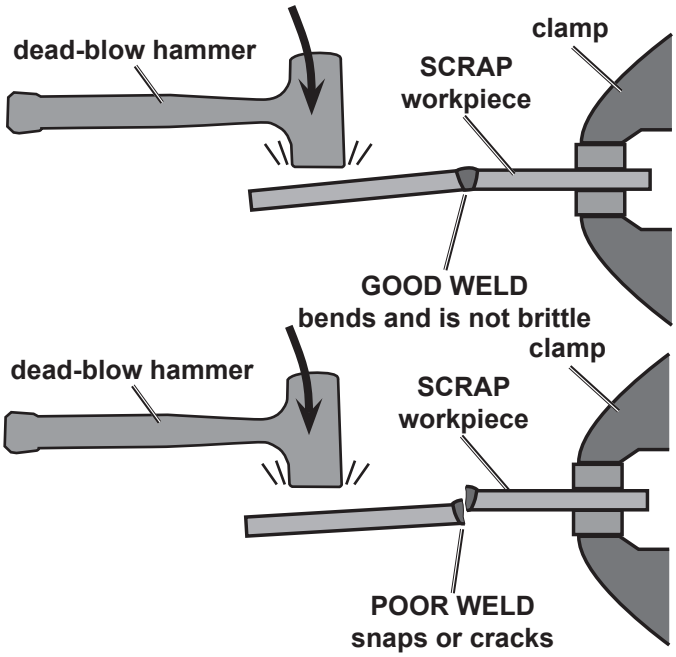


Strike Test

A test weld on a PIECE OF SCRAP can be tested by using the following procedure. WEAR ANSI-APPROVED SAFETY GOGGLES DURING THIS PROCEDURE.

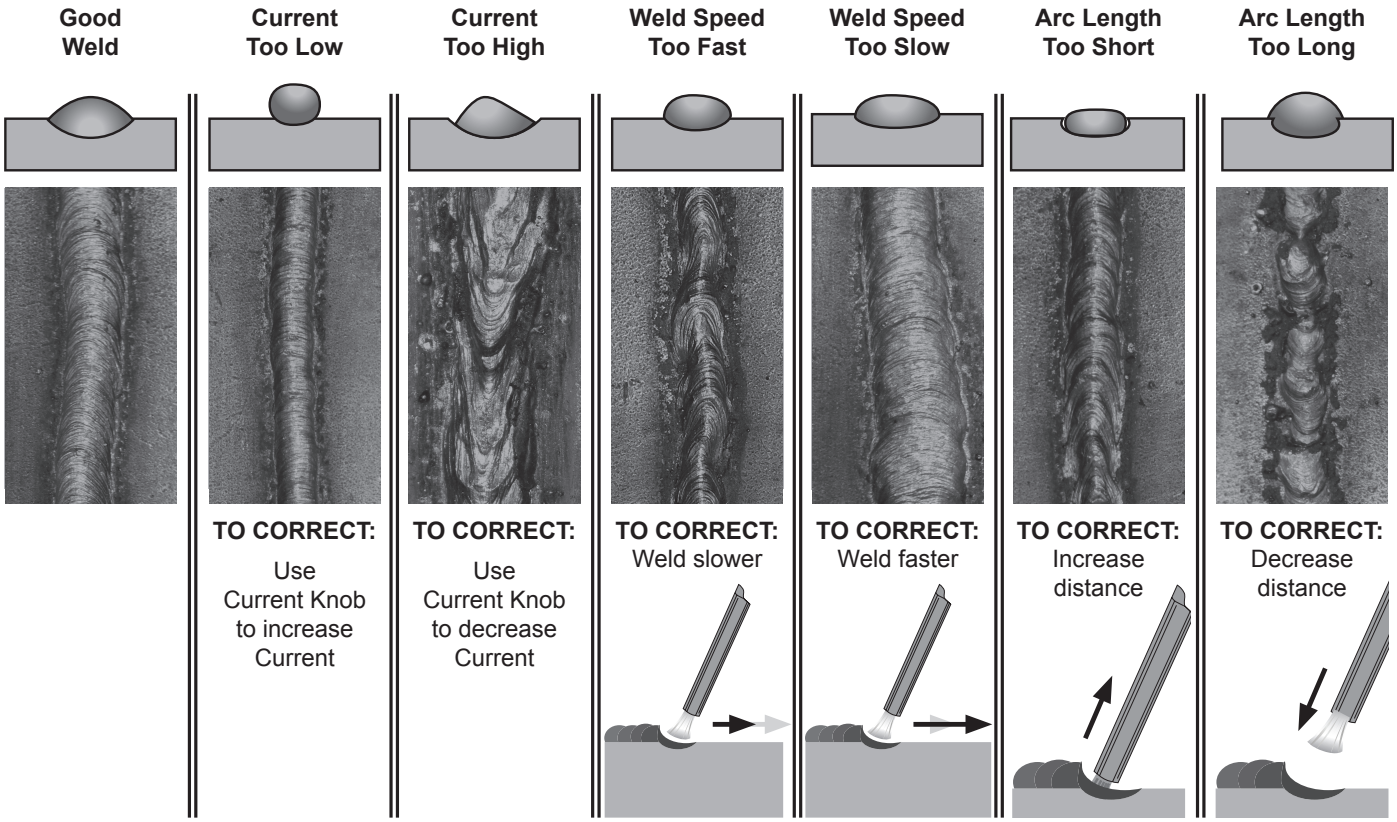
<u>WARNING!</u> This test WILL damage the weld it is performed on. This test is ONLY an indicator of weld technique and is not intended to test working welds.

1. After two scraps have been welded together and the weld has cooled, clamp one scrap in a sturdy vise.
2. Stay clear from underneath while you strike the opposite scrap with a heavy hammer, preferably a dead-blow hammer.
3. A **GOOD WELD** will deform but not break, as shown on top.
   A **POOR WELD** will be brittle and snap at the weld, as shown on bottom.

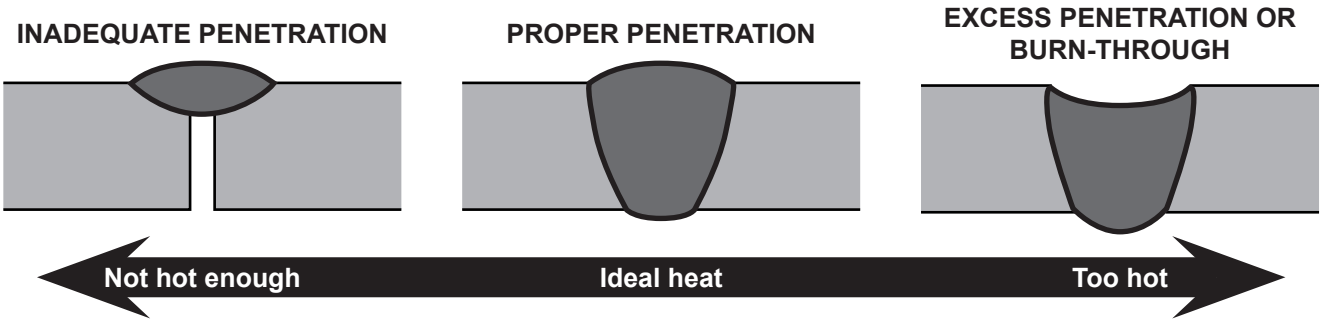


Example Weld Diagrams

CLEAN WELDS FIRST! Stick welds will have a coat of slag over them until cleaned.


Good Weld
Current Too Low
Current Too High
Weld Speed Too Fast
Weld Speed Too Slow
Arc Length Too Short
Arc Length Too Long
TO CORRECT: Use Current Knob to increase Current
TO CORRECT: Use Current Knob to decrease Current
TO CORRECT: Weld slower
TO CORRECT: Weld faster
TO CORRECT: Increase distance
TO CORRECT: Decrease distance

Diagnosis - Workpiece Heat Control / Weld Penetration



How to increase workpiece heat and increase penetration:
(to weld THICKER workpieces properly)

a. Increase current. b. Weld more slowly.

How to reduce workpiece heat and limit penetration:
(to weld THINNER workpieces properly)

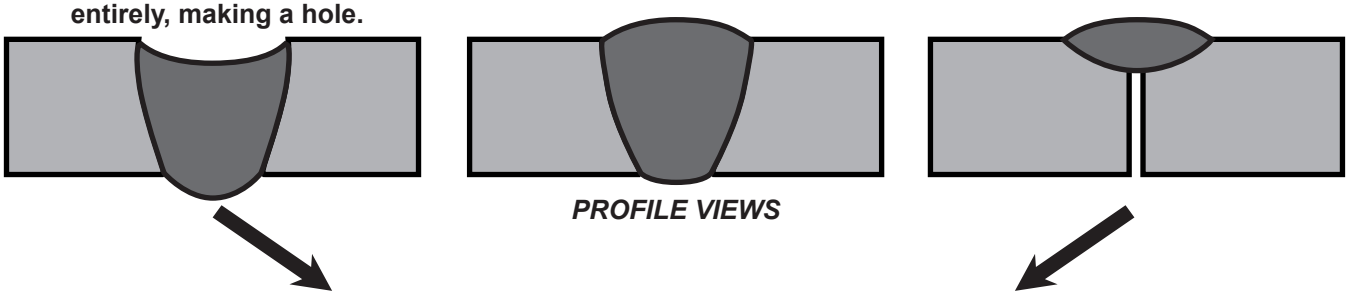
a. Decrease current. b. Weld more quickly.

Penetration (Workpiece Heat Control)

EXCESS PENETRATION OR BURN-THROUGH
Weld droops on top and underneath or falls through entirely, making a hole.

PROPER PENETRATION
Weld is visible underneath and bulges slightly on top.

INADEQUATE PENETRATION
Weld does not contact the joint fully, just on the surface.



PROFILE VIEWS

POSSIBLE CAUSES AND SOLUTIONS

1. **Workpiece overheating:**
   Reduce current.
2. **Welding speed too slow:**
   Increase welding speed and ensure that welding speed is kept steady.

POSSIBLE CAUSES AND SOLUTIONS

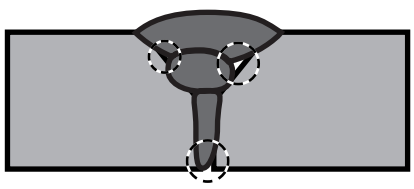
1. **Incorrect welding technique:**
   Keep arc on leading edge of weld puddle. Hold electrode at proper angles.
2. **Insufficient weld heat:**
   Slow down so fill material has time to melt into the weld location. Increase current.
3. **Workpieces too thick/close:**
   Bevel thick workpieces, allow slight gap, and weld in several passes.
4. **Insufficient weld material:**
   Increase amount of fill material.

Weld Not Adhering Properly

Gaps present between weld and previous bead or between weld and workpiece. See areas below.

POSSIBLE CAUSES AND SOLUTIONS

PROFILE VIEW

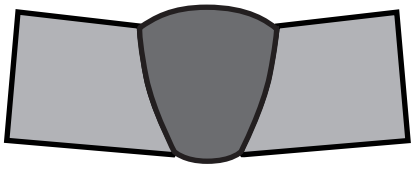


1. **Incorrect welding technique:**
   Place stringer bead at correct place in joint. Adjust workpiece position or weld angle to permit proper welding to bottom of piece. Keep arc on leading edge of weld puddle. Hold gun at proper angles.
2. **Insufficient weld heat:**
   Increase current.
3. **Dirty workpiece:**
   Clean workpiece down to bare metal.

Bend at Joint

POSSIBLE CAUSES AND SOLUTIONS

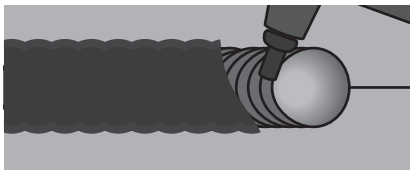
PROFILE VIEW



1. **Improper clamping:**
   Clamp workpieces securely.
   Make tack welds to hold workpieces.
2. **Excessive heat:**
   Weld a small portion and allow to cool before proceeding.
   Increase weld speed.

Coat of Slag Over Weld

TOP VIEW



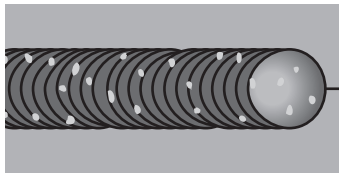
PARTIALLY CHIPPED AWAY TO SHOW WELD

Slag is a necessary part of a stick weld. It shields the weld from impurities. Clean off the slag with the Chipping Hammer and Wire Brush after welding.

Porosity - Small cavities or holes in the bead.

POSSIBLE CAUSES AND SOLUTIONS

TOP VIEW

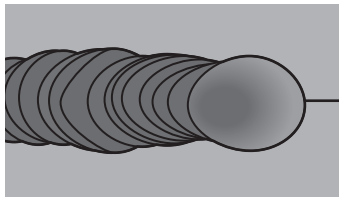


1. **Dirty workpiece or electrode:**
   Clean workpiece down to bare metal.
   Make certain that fill material and electrode are clean and free from oil, coatings, and other residues.
2. **Inconsistent welding speed:**
   Maintain steady weld speed.

Crooked/Wavy Bead

POSSIBLE CAUSES AND SOLUTIONS

TOP VIEW

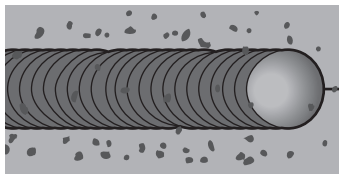


1. **Inaccurate welding:**
   Use two hands or rest hand on steady surface.
2. **Inconsistent welding speed:**
   Maintain steady weld speed.

Excessive Spatter

POSSIBLE CAUSES AND SOLUTIONS

TOP VIEW



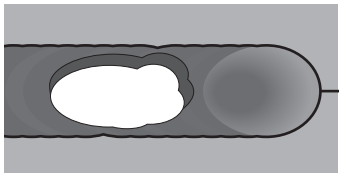
Fine spatter is normal. Spatter that is grainy and large is a problem.

Dirty workpiece or electrode:
Clean workpiece down to bare metal.
Make certain that electrode is clean and free from oil, coatings, and other residues.

Burn-Through - Base material melts away, leaving a hole in the weld.

POSSIBLE CAUSES AND SOLUTIONS

TOP VIEW



1. **Workpiece overheating:**
   Reduce current.
2. **Welding speed too slow:**
   Increase welding speed and ensure that welding speed is kept steady.
3. **Excessive material at weld:**
   Reduce amount of fill material.

⚠WARNING

TO PREVENT SERIOUS INJURY, FIRE AND BURNS:
Unplug the Welder, rest the tool on a heat-proof, electrically non-conductive surface, and allow all parts of the Welder to cool thoroughly before service.

1. Periodically remove the Right and Left side panels, and using compressed air, blow out all dust from the interior.
2. Store in a clean and dry location.
3. **For optimal weld quality, clean and inspect the Contact points before each use.**

Troubleshooting

IMPORTANT!

Be CERTAIN to shut off the Welder, disconnect it from power, and discharge the Electrode Holder to ground before adjusting, cleaning, or repairing the unit.

Problem	Possible Cause	Solution
Power Switch Lights, but Welder Does Not Function When Switched ON	1. Tripped thermal protection device. 2. Faulty connection.	1. Reduce duration or frequency of welding periods to help reduce wear on the welder. Refer to **Duty Cycle (Duration of Use)** on page 8. 2. Qualified technician must check connection.
Power Switch Does Not Light When Switched On	Unit is not connected to outlet properly or outlet is unpowered	Verify the voltage at the outlet and the connection to the outlet. If voltage is not present at outlet, check circuit breaker/GFCI devices; if any are tripped, determine and remedy cause before resetting. Verify that the circuit is designed to supply the required input
Weak Arc Strength	1. Incorrect line voltage. 2. Improper gauge or length of extension cord.	1. Check the line voltage and, if insufficient, have a licensed electrician remedy the situation. 2. Extension cords are not recommended. If possible, eliminate the use of an extension cord. If an extension cord is needed, refer to the guidelines on page 5.
Welding Arc Not Stable	1. Loose Electrode Handle cable or Ground cable. 2. Damaged Electrode Handle or loose connection within Electrode Handle. 3. Adjust current setting.	1. Check to ensure that all connections are tight. 2. Have a qualified technician inspect and repair or replace, as necessary. 3. Make sure setting matches recommended setting.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER NOR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Parts List

Part	Description	Qty
1	Handle	1
2	Current Indicator	1
3	Cover	1
4	Pointer	1
5	Spring	2
6	Rod Spring	1
7	Plunger Bracket	1
8	Grommet	1
9	Front Panel	1
10	Overload Light	1
11	Power Light	1
12	Electrode Holder Cable	1
13	Current Knob	1
14	Ground Clamp Cable	1

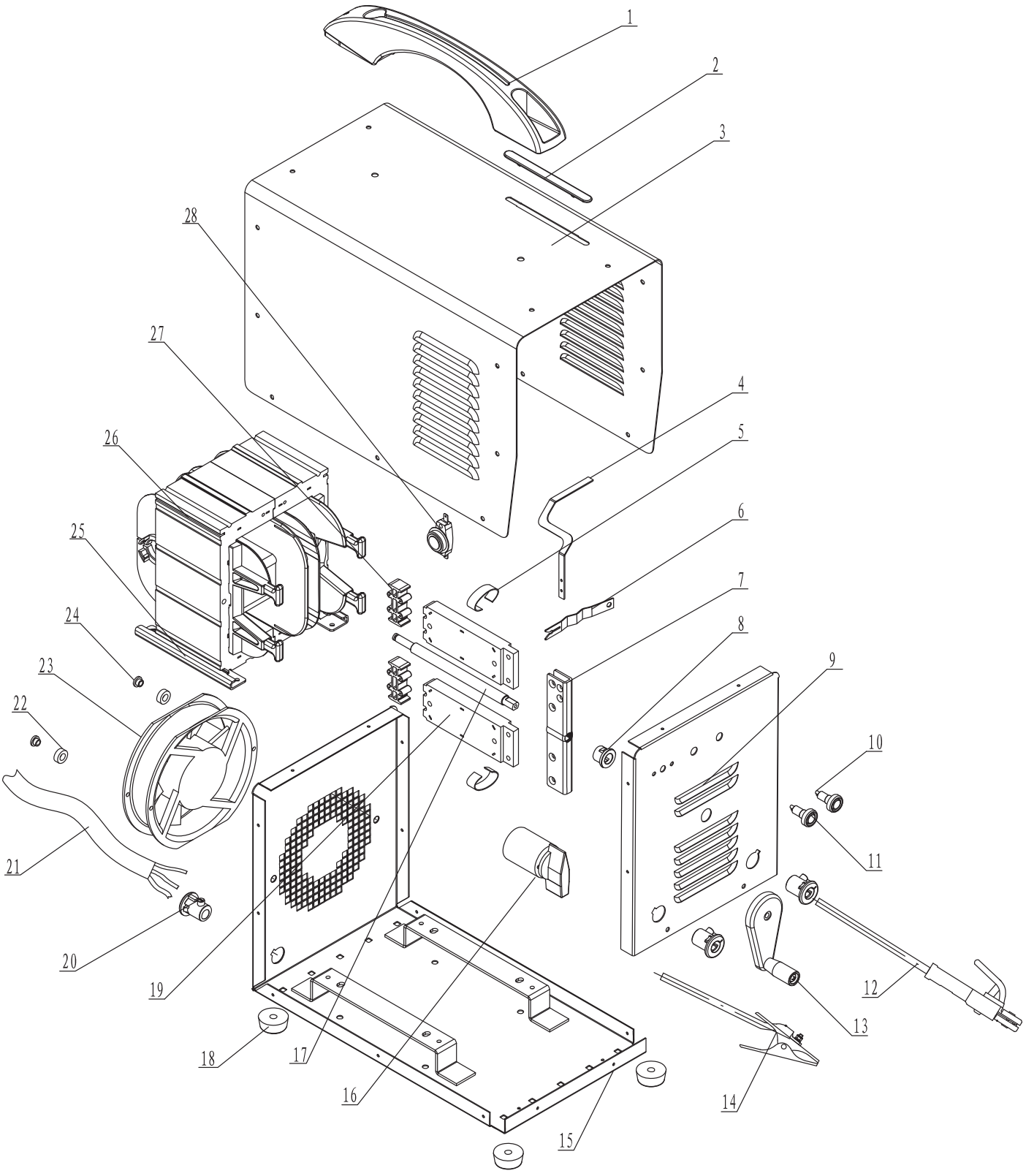
Part	Description	Qty
15	Base	1
16	Power Switch	1
17	Screw Rod	1
18	Foot	4
19	Plunger	2
20	Grommet	3
21	Power Cord	1
22	Nylon Cover Grommet	4
23	Fan	1
24	Nylon Cover	4
25	Transformer Bracket	2
26	Transformer	1
27	Plunger Slider	2
28	Thermostat	1

Record Product's Serial Number Here:_____

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

Assembly Diagram



Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

CHICAGO ELECTRIC WELDING

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